

REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

The Applicants acknowledge with appreciation the indication in the Office Action that claims 46, 47, and 55-57 are allowable.

Figs. 1-11 and 16 have been amended to include legends identifying them as related art, in order to overcome the applied objection.

Withdrawn claims 65-74 have been canceled without prejudice or disclaimer as to the filing of a divisional application.

Claim 64 has been canceled, and claims 38-49 and 52-63 have been amended. The amendments have been drafted to overcome the 35 USC 112, second paragraph, rejections applied to claims 43, 46, and 47. Support for the amended subject matter is provided in original claim 23, Figs. 4-6, and the specification on page 7, lines 4-13, page 7, line 25, through page 8, line 3, and page 25, lines 23-26. (It should be noted that references herein to the specification and drawings are for illustrative purposes only and are not intended to limit the scope of the invention to the referenced embodiments.)

Claims 38-41, 44, 45, 48-54, and 59-63 stand rejected, under 35 USC §103(a), as being unpatentable over Ranta-Aho et al. (US 2005/0048975) in view of Tiedemann, Jr. et al. (US 2005/0037771). Claims 42, 43, 58, and 64 stand rejected, under 35 USC §103(a), as being unpatentable over Ranta-Aho in view of Tiedemann and Legg et al. (US 6,414,947). To the extent these rejections may be deemed applicable to the amended claims presented herein, the Applicants respectfully traverse based on the points set forth below.

Claim 38 now defines a method for communicating information relating to the scheduling of uplink data transmissions. According to this method, a scheduling base station transmits resource information to another base station and each of the base stations schedules communication with a different mobile terminal based on the coordinated resource information. The claimed subject matter provides an advantage of supporting coordination among multiple base stations (Node B's) so as to increase the efficiency of soft handover (see specification page 16, lines 20-25).

The Office Action proposes that Ranta-Aho discloses, in paragraphs [0013], [0014], and [0016], informing a base station of allocated uplink resources (see Office Action page 5, lines 12-14). Although Ranta-Aho discloses a user equipment (UE) that informs a base station of allocated resource information (see Ranta-Aho paragraph [0016], lines 1-6), as proposed in the Office Action, the Applicants note that Ranta-Aho does not disclose the Applicants' claimed subject matter of a base station that transmits allocated resource information to another base station.

It is important to keep in mind that Ranta-Aho's UE is a mobile telephone (see Ranta-Aho paragraph [0002], line 7), not a base station. Thus, Ranta-Aho discloses a mobile telephone that communicates information to a base station, whereas the instant claimed subject matter is directed to a base station that communicates information to another base station. Tiedemann is not cited in the Office Action for supplementing the teachings of Ranta-Aho in this regard.

Because Ranta-Aho and Tiedemann do not teach or suggest the instant claimed subject matter of a base station communicating information to another base station, it necessarily follows *per force* that Ranta-Aho and Tiedemann cannot suggest the instant claimed subject matter of

each base station using the coordinated (i.e., communicated from one base station to another) information to schedule communication for a different mobile terminal.

Accordingly, the Applicants submit that the teachings of Ranta-Aho and Tiedemann, even if combined in the manner asserted in the office action, would not achieve all of the elements of instant claim 38. Thus, these references, considered individually or in combination, do not render obvious the subject matter now defined by claim 38. Independent claim 61 similarly recites the above-mentioned subject matter distinguishing method claim 38 from the applied references, but with respect to an apparatus. Therefore, the rejections applied to claims 42, 43, 58, and 64 are deemed to be obviated, and allowance of claims 38 and 61 and all claims dependent therefrom is considered to be warranted.

To promote a better understanding of the patentable distinctions of the claimed subject matter over the applied references, the Applicants provide the following additional remarks.

A concept of the invention embodied in the independent claims relates to the coordination of base stations (Node Bs) during soft handover of mobile terminals as described in the specification on page 25, lines 23-26, and page 26, line 30, through page 27, line 22. From these passages, it should be apparent to those skilled in the art that, in order to achieve such coordination, other base stations are informed on the allocated maximum amount of uplink resources (grant) applicable to the individual HARQ processes used for uplink data transmission. This clarification of the allocated maximum amount of uplink resources (grant) being for use in uplink data transmissions on plural HARQ processes is also reflected in the dependent claims.

In addition, the independent claims have been clarified by stating that the: (1) scheduling base station transmits information to at least one other base station to inform it of the applicable

allocated amount of resources and (2) the other base station schedules another mobile station based on the information received from the scheduling base station.

Ranta-Aho relates to telecommunication networks according to 3GPP specifications, such as UMTS (see Ranta-Aho paragraph [00011]). The focus of this reference is the synchronization of TFC/data rate pointers of a UE and a serving Node B during soft handover, in particular upon changing the serving Node B (see paragraph [0035]).

In this connection, it is important to note that the UE designates the scheduling cell from among a plurality of cells involved in a soft handover. Hence, there is a UE selection of the serving Node B (see, for example, paragraphs [0013], [0016], [0033], and [0034]). The UE communicates the selected scheduling cell by communicating the cell ID in the uplink transmissions (see, for example, paragraphs [0013], [0033] and [0040]).

The synchronization of the "data rate pointer," as the TFC pointer is referred to within Ranta-Aho, needs to be communicated in view of using the differential commands to increase or decrease the value of a pointer indicating the maximum allowed rate for uplink transmission (i.e. the maximum TFC pointer) (see paragraphs [0029], [0030], [0014], [0021]). Only the Node B controlling the scheduling cell (i.e., the serving Node B) as indicated in the uplink transmission of the UE will schedule the UE, i.e., will send scheduling commands (up/down) to the UE (see paragraphs [0013], [0033], and [0034]).

As indicated in Ranta-Aho's Fig. 2, the UE examines the signal quality of different cells involved in the soft handover and determines the scheduling cell. The UE further signals uplink information indicating the scheduling cell, which is received by all Node Bs controlling radio cells involved in the soft handover. If a Node B receiving the uplink data determines that it is

controlling the indicated scheduling cell, it is designated the serving Node B and issues scheduling commands to the UE. Otherwise, no scheduling of the UE is performed by the Node B.

As is apparent from the summary of Ranta-Aho's disclosure provided above, the document does not relate to a concept embodied in the instant independent claims, that the scheduling base station of a plurality of base stations serving a mobile terminal during soft handover is scheduling uplink transmissions of the mobile terminal and determines scheduling information for the mobile terminal indicative of allocated maximum amount of uplink resources applicable to the individual HARQ processes used for uplink data transmission via an E-DCH of a UMTS system. The scheduling base station informs at least one other (e.g., non-serving) base station involved in the soft handover on the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes, and the other base station schedules another mobile terminal in communication with a respective base station based on the information received from the scheduling base station.

Hence, a concept of the instant independent claims is the use of information on the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes for scheduling other mobile terminals in non-serving cells.

a) First of all, it should be noted that there is no teaching or suggestion provided in the entire disclosure of Ranta-Aho that a mobile terminal uses a plurality of Hybrid Automatic Repeat reQuest (HARQ) processes to transmit uplink data via an Enhanced Uplink Dedicated Channel of a Universal Mobile Telecommunication System (UMTS) system.

b) Furthermore, Ranta-Aho does not disclose or suggest that a serving base station determines information for a mobile terminal indicative of allocated maximum amount of uplink resources applicable to individual HARQ processes used for uplink data transmission. Although Ranta-Aho mentions that a "maximum data rate" is determined, Ranta-Aho fails to teach its applicability to the individual HARQ processes used for uplink data transmission (see paragraphs [0013] and [0014] mentioned in the Office Action).

c) More important, and distinctly different from Ranta-Aho, the invention of the instant independent claims requires that the scheduling base station informs the non-scheduling base station on applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes. In Ranta-Aho, no inter-Node B communication is mentioned at all.

Furthermore, with respect to the indication of the allocated maximum amount of uplink information, the Applicants note that there are several possibilities mentioned within Ranta-Aho as to how the data rate pointers (TFC pointer) of a UE and a "newly designated" scheduling cell (i.e., serving Node B) can be realized, which partly includes the communication of information on the TFC pointer (see paragraph [0036]).

The first option is that the data rate pointers of both the UE and the new scheduler Node B can be set to point to the data rate (TFC) used when the UE was transmitting the change of scheduling cell, i.e., transmitting the identifier of the new scheduling cell in the uplink. in this case. However, the TFC is not indicating the applicability of an allocated maximum uplink resource to individual HARQ processes, but rather the currently used amount of resources.

The second solution suggested by Ranta-Aho is that the data rate pointers of both the UE and the new scheduler Node B are set at the time of change to some predetermined data rate (TFC); in this case, there is no information exchanged at all, such as informing at least one other base station.

Also, the solution where the data rate pointers of the UE and the new scheduler Node B are set according to some other criteria does not teach or suggest the instant claimed subject matter of informing at least one other base station as recited in independent claim 38.

Furthermore, the further solution mentioned in Ranta-Aho, in paragraph [0036] is that the new scheduler Node B selects a value for the data rate pointer and explicitly signals the value to the UE. In this case, the other non-serving base station is not informed on an allocated amount of uplink resources, but rather the UE. Moreover, this data rate pointer will not indicate the allocated maximum amount of uplink resources, but rather the amount of uplink resources to be used by the UE and Node B for synchronization purposes.

d) In addition, there appears to be no teaching or suggestion within Ranta-Aho, as acknowledged in the Office Action, that the at least one other base station (i.e., a non-serving base station) is scheduling some other mobile terminal using the indicated maximum amount of uplink resources allocated to the mobile terminal in soft handovers.

Tiedemann also fails to disclose the feature of informing another base station on the applicability of an allocated maximum amount of uplink resources to individual HARQ processes used for uplink transmission by a mobile terminal in handover.

Although Tiedemann relates to the consideration of load situations from other cells in the scheduling of a cell, Tiedemann does not disclose or suggest communication among individual

base stations, i.e., there is no information signal from a serving base station to a non-serving base station (see Tiedemann Figs. 15 and 16 and paragraphs [0095] or [0024]).

Accordingly, Tiedemann's non-serving base station does not consider any information signaled from the serving base station.

Also, the Applicants submit that it is not apparent how the teachings of Ranta-Aho and Tiedemann could be combined as suggested in the office action. Although Tiedemann concerns the use of load related information for mobile stations in handover, the Applicants submit that such load related information used for scheduling is not similar to the communication of information on the applicability of a maximum allocated amount of uplink resources to individual HARQ processes from a serving base station to a non-serving base station, and the use of this information in scheduling other mobile terminals by the non-serving base station.

In Ranta-Aho, the UE indicates a currently used data rate to a new scheduling cell (see Ranta-Aho paragraph [0036], third option). Even if considering this data rate as corresponding to an amount of uplink resources, this amount of uplink resources is the currently utilized amount of uplink resources, but not the maximum allocated amount of uplink resources allocated to the mobile terminal in soft handover. Furthermore, in view of Ranta-Aho relating to the synchronization of data rate pointers (TFC pointers) upon scheduling a cell change, it is also not apparent what would have motivated or taught the skilled person to amend the system of Ranta-Aho in such a way that the maximum data rate is signaled from the UE to the Node B controlling the new scheduling cell. From a synchronization perspective, the signaling of the maximum data rate seems not to make any sense and would introduce additional signaling overhead in the uplink. The advantage of using the currently utilized TFC when indicating the user scheduling

cell in the uplink is that no additional control information, except for the identification of the new scheduling cell, needs to be included in the uplink to designate the new scheduling cell.

Accordingly, it seems not really feasible to further increase the signaling overhead by also indicating the maximum amount of uplink resources allocated to the UE, as this would not aid synchronization of the TFC pointers.

In view of the above, it is submitted that this application is in condition for allowance, and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

/James Edward Ledbetter/

Date: June 10, 2009  
JEL/DWW/att

James E. Ledbetter  
Registration No. 28,732

Attorney Docket No. 007725-06118  
Dickinson Wright PLLC  
1875 Eye Street, NW, Suite 1200  
Washington, DC 20006  
Telephone: (202) 659-6966  
Facsimile: (202) 659-1559  
DC 7725-6118 137550v1